

# Service Manual

Washing machine

Frontloader

AWM 312

<b>Model</b>	AWM 312	
<b>Version</b>	8570 312 53000	Page
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	Family	2 B

## Technical data

### Dimensions

Height	85,0	cm
Width	59,5	cm
Depth	55,0	cm

### Weight

without packing	73	kg
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### Main connection

Voltage	240	V
Frequency	50	Hz
Power consumption	2,3	kW
Fuse rating	10	A

### Drum

Volume	48	l
Wash spin	54	rpm
Ramp spin	110	rpm
Speed spinning max	1200	rpm

### Capacity of dry laundry

cotton/coloured laundry	5	kg
cotton rapid	3	kg
Easy care	2,5	kg
Easy care rapid	1,5	kg
Delicate	1,5	kg
Wool	1	kg

### Pressostat

#### Quantity of water washing

cotton/coloured laundry	9,5	l
Easy care	9,5	l
Delicate	14,0	l
Wool	16,5	l
Overflow	30,0	l

#### Quantity of water rinse

cotton/coloured laundry	12,0	l
Easy care	11,5	l
Delicate	15,0	l
Wool	17,0	l
Overflow	30,0	l

### Nominal current

Contacte	11 - 12	4 (4) A
	11 - 14	16 (4) A
	11 - 16	1 (1) A
Contactsystem	11-12-14	jump contacts
	11 - 16	slow action contacts

### Door lock

Lock time	3 - 6"	( 20°C )
Unlock time	60 - 90"	
Nominal voltage	230	V
Nominal current	contact 4 - 5	1 mA
	contact 11-14	16 (4) A

### Heating element

Kind of heating	Tubular heating element with NTC - Sensor	
Nominal voltage	240	V
Nominal power	2050	W
Heat conductor resistance	28,09	Ω
Resistance NTC	0	°C 35,9 kΩ
	30	°C 9,8 kΩ
	40	°C 6,6 kΩ
	50	°C 4,6 kΩ
	60	°C 3,2 kΩ
	70	°C 2,3 kΩ
	95	°C 1,1 kΩ

### Inlet valve

Water temperature max.	60	°C
Rated flow	< 1 bar	4 l/min.
Pressure range	0,5-10	bar
Nominal voltage	220-240V	
Frequency	50	Hz
Starting voltage	< 6 bar	160 V
	6-10 bar	170 V
Nominal current	35	mA
Nominal power	6	VA
Nominal resistor	( 20°C )	4060 Ω

### Drain pump (synchronous)

Nominal voltage	230	V
Nominal current	0,3	A
Nominal consumption	34	W
Frequency	50	Hz
Resistor (coil)	155	Ω ± 7%
Motor protection	no	
capacity (1,25m height)	15	l/min. ± 2

**Technical data****Inlet valve hot**

Water temperature max.	90	°C
Rated flow	< 1 bar 4	l/min.
Pressure range	0,5-10	bar
Nominal voltage	220-240	V
Frequency	50	Hz
Starting voltage	< 6 bar 160	V
	6-10 bar 170	V
Nominal current	35	mA
Nominal power	6	VA
Nominal resistor	( 20°C ) 4060	Ω

**Program timer**

Typ	Hybrid timer with integrated electronic	
Fab.	Eaton EC 4475 (Timer 2b)	
Nominal voltage	230	V
Frequency	50	Hz
Total positions	60	

**Positions**

Pre wash	pos.	01 - 09
Main wash	pos.	10 - 31
Rinse	pos.	32 - 49
Spin	pos.	50 - 55
Safety position	pos.	56 - 58
Stop	pos.	59 - 60

**Motor**

Typ	MCA 52/64 - 148 t.f./ WHE0 i = 1 : 13,5	
Resistance contacts	6 - 7	68,70 Ω ± 7%
	4 - 5	2,15 Ω ± 7%
	2 - 3	1,46 Ω ± 7%
	1 - 3	0,65 Ω ± 7%

**Radio interference supression**

Condensator	Fribourg FA 26
Nominal voltage	230 V
Nominal capacity	0,47 μ FX2+2x0,022 nF Y
Nominal inductances	2 x 470 mH
Nominal resistance	680 mΩ

**Temperature selector switch**

Positions	7
Nominal voltage	5 V
Value of resistors	
1-2-3	internal shunt
4-6	internal shunt
5-6	Pos. 1 0 Ω
	Pos. 2 0,68 kΩ ± 5%
	Pos. 3 1,10 kΩ ± 5%
	Pos. 4 1,80 kΩ ± 5%
	Pos. 5 2,70 kΩ ± 5%
	Pos. 6 3,60 kΩ ± 5%
	Pos. 7 4,70 kΩ ± 5%

**Switch rotary spin speed**

Positions	7
Nominal voltage	5 V
Value of resistors	
1-2-3	internal shunt
4-6	internal shunt
5-6	Pos. 1 0 Ω
	Pos. 2 0,68 kΩ ± 5%
	Pos. 3 1,10 kΩ ± 5%
	Pos. 4 1,80 kΩ ± 5%
	Pos. 5 2,70 kΩ ± 5%
	Pos. 6 3,60 kΩ ± 5%
	Pos. 7 4,70 kΩ ± 5%

**Push botton switch**

Start stop	SST
Rinse hold	SRS
Pre wash	SPW
Eco	SEC
Rapid	SR
Half load	SHL
Intensive rinse	SRI

## Spare part list

**Model**  
**Service No.**  
**Version**

**AWM 312**  
**857031253000**  
**857031253000**

Pos. No.	12NC Code	Description
001 0	<b>4819 440 19716</b>	Cabinet
003 0	<b>4812 464 48105</b>	Traverse hot
011 0	<b>4812 500 18068</b>	Foot variable
021 0	<b>4819 440 19715</b>	Front
021 1	<b>4812 440 19343</b>	Flap
024 0	<b>4812 440 18998</b>	Panel, rear
025 0	<b>4812 440 19345</b>	Holder Contr. Device
030 0	<b>4812 310 18396</b>	Cover plate
040 0	<b>4812 417 18793</b>	Hinge
053 0	<b>4819 440 19714</b>	Plinth
053 1	<b>4812 459 38013</b>	Flap Plinth
061 0	<b>4812 466 88458</b>	Counter weight upper
061 1	<b>4812 466 88459</b>	Counter weight front
080 0	<b>4812 529 18036</b>	Shock absorber 600-1200
084 0	<b>4812 466 58001</b>	Silent block
086 2	<b>4812 401 18412</b>	Stopper
110 0	<b>4812 498 18139</b>	Handle,door
130 0	<b>4812 417 28046</b>	Lock Door
130 1	<b>4812 417 28045</b>	Pin Door Lock
131 0	<b>4812 417 28047</b>	Plate Door lock
131 1	<b>4812 417 28048</b>	Plate Doorlock Lower
141 0	<b>4812 450 68219</b>	Door glass
143 0	<b>4812 440 19342</b>	Glassdoor frame
144 0	<b>4812 459 28043</b>	Frame,door glas
144 1	<b>4812 498 18137</b>	Knob Door safety
144 2	<b>4812 492 58023</b>	Spring Door Safety
144 3	<b>4812 290 68153</b>	Holder,adjust. Door Safety
190 0	<b>4812 460 68527</b>	Door bellow
190 1	<b>4812 492 18017</b>	Strap
190 2	<b>4819 530 58059</b>	Ring
200 1	<b>4819 418 18313</b>	Tub, half front
200 2	<b>4819 418 18352</b>	Tub
200 3	<b>4812 520 18065</b>	Hub 1200,48L
200 4	<b>4812 290 88054</b>	Clamp for tub WH
220 0	<b>4812 418 18201</b>	Drum
223 0	<b>4819 515 28244</b>	Drum lifter
271 0	<b>4812 358 18056</b>	V-ribbed belt WH 1250 J5
272 0	<b>4812 528 58027</b>	Pulley DIAM.298
292 0	<b>4812 530 58101</b>	Gasket Tub
301 0	<b>4812 452 19261</b>	Control panel
303 0	<b>4819 498 78157</b>	Handle
322 0	<b>4819 459 19462</b>	Insert
331 0	<b>4812 413 48236</b>	Knob Timer WH 2B
331 1	<b>4812 413 18198</b>	Adapter Button
332 0	<b>4812 410 28562</b>	Push button
335 0	<b>4812 413 48268</b>	Knob temp.
337 0	<b>4812 413 48265</b>	Knob spin speed
341 0	<b>4812 413 18209</b>	Disc,indication TIMER 2B
354 1	<b>4812 134 48197</b>	Pilot lamp
401 0	<b>4812 361 58094</b>	Motor 1200-MCA52/WHEO
401 1	<b>4812 362 48004</b>	Brush,carbon motor CESET
421 0	<b>4812 121 18142</b>	Interf.filter 1,00 mF
430 0	<b>4812 360 18362</b>	Pump
451 0	<b>4819 259 28909</b>	Heating element
490 0	<b>4819 321 18161</b>	Cable,mains

Pos. No.	12NC Code	Description
490 1	<b>4812 321 28367</b>	Strain relief
504 0	<b>4812 282 18453</b>	Timer
511 0	<b>4812 413 48223</b>	Selector Temp./Spin
571 0	<b>4812 281 28382</b>	Valve,magnet COLD
571 1	<b>4812 281 28383</b>	Valve,magnet HOT
581 0	<b>4819 271 29019</b>	Pressostat
620 1	<b>4812 276 18238</b>	Switch Options
621 0	<b>4812 276 18239</b>	Switch Start/Start-Delay
630 0	<b>4812 280 58019</b>	Door lock
701 0	<b>4819 530 28848</b>	Hose, inlet
701 1	<b>4819 466 69704</b>	Gasket and filter
701 2	<b>4819 530 28768</b>	Hose, inlet warm
702 0	<b>4819 530 29019</b>	Hose
702 1	<b>4819 530 28971</b>	Hose, inlet
707 0	<b>4812 526 48031</b>	Nozzle Distribution
707 1	<b>4812 526 48028</b>	Nozzle
707 3	<b>4812 526 48035</b>	Nozzle warm
707 4	<b>4812 526 48034</b>	Nozzle warm
708 1	<b>4812 530 48143</b>	Bend
711 0	<b>4819 418 79434</b>	Dispenser
712 0	<b>4812 418 88029</b>	Drawer Detergent
713 0	<b>4812 418 88019</b>	Flap Detergent Container
717 0	<b>4819 321 28092</b>	Bowden cable
717 1	<b>4812 321 38013</b>	Lever , Nozzle
717 2	<b>4812 321 38012</b>	Holder,adjust.
717 3	<b>4812 278 88007</b>	Slide
717 5	<b>4812 310 18381</b>	Cam
718 0	<b>4812 526 48027</b>	Siphon 3 - Chamber
718 1	<b>4812 418 88018</b>	Accessory
753 1	<b>4819 418 68234</b>	Chamber,air
754 0	<b>4812 530 28826</b>	Drainhose
754 1	<b>4812 530 28832</b>	Lock eco
754 2	<b>4812 530 28829</b>	Flange eco
760 0	<b>4812 480 58075</b>	Filter Set Pump
760 1	<b>4812 418 68138</b>	Gasket Sieve / Rough
781 0	<b>4812 530 28831</b>	Hose,draining
783 0	<b>4812 530 28827</b>	Hose Pressostat
786 0	<b>4812 530 28812</b>	Hose Draining
786 1	<b>4812 462 78179</b>	Threaded cap
787 0	<b>4812 530 28813</b>	Hose
794 5	<b>4812 530 58095</b>	Gasket Air trap
901 0	<b>4812 401 18415</b>	Clamp,hose Tub
901 2	<b>4812 401 18401</b>	Strap
901 3	<b>4812 401 18414</b>	Clamp,hose
902 0	<b>4812 290 88049</b>	Bracket
902 1	<b>4812 255 18204</b>	Holder Hose outlet
903 0	<b>4812 255 18205</b>	Holder Pressostat
903 5	<b>4812 290 88048</b>	Cable clamp
903 7	<b>4819 401 18823</b>	Clamp
903 8	<b>4819 404 78449</b>	Support
903 9	<b>4812 290 88046</b>	Cable clamp
910 0	<b>4812 502 18383</b>	Screw Torx T40 M 8X 25
910 1	<b>4812 505 18368</b>	Nut M10
911 7	<b>4812 903 08014</b>	Screw M5x12
923 0	<b>4812 532 18024</b>	Washer

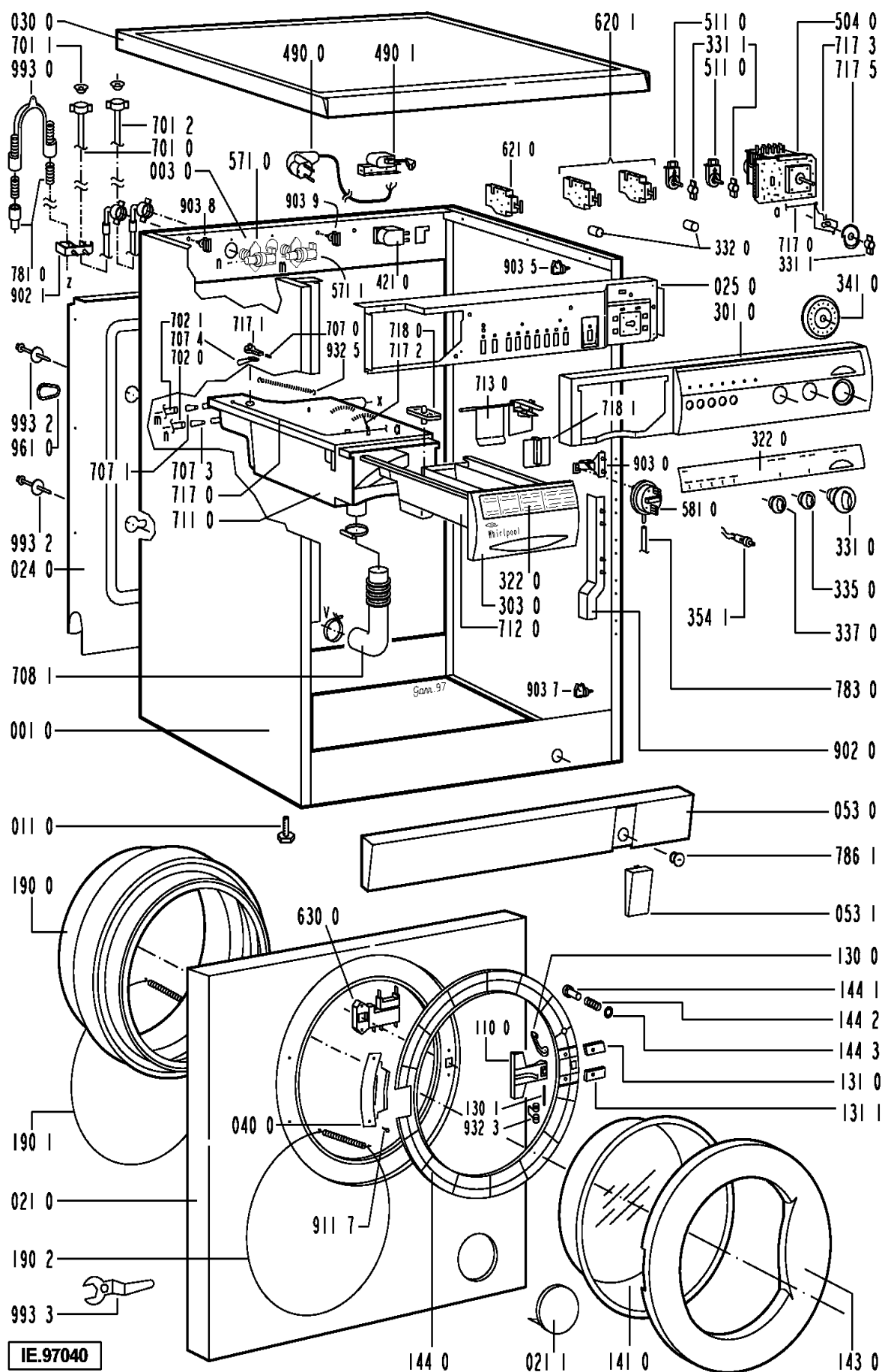
## Spare part list

Model	AWM 312
Service No.	857031253000
Version	857031253000

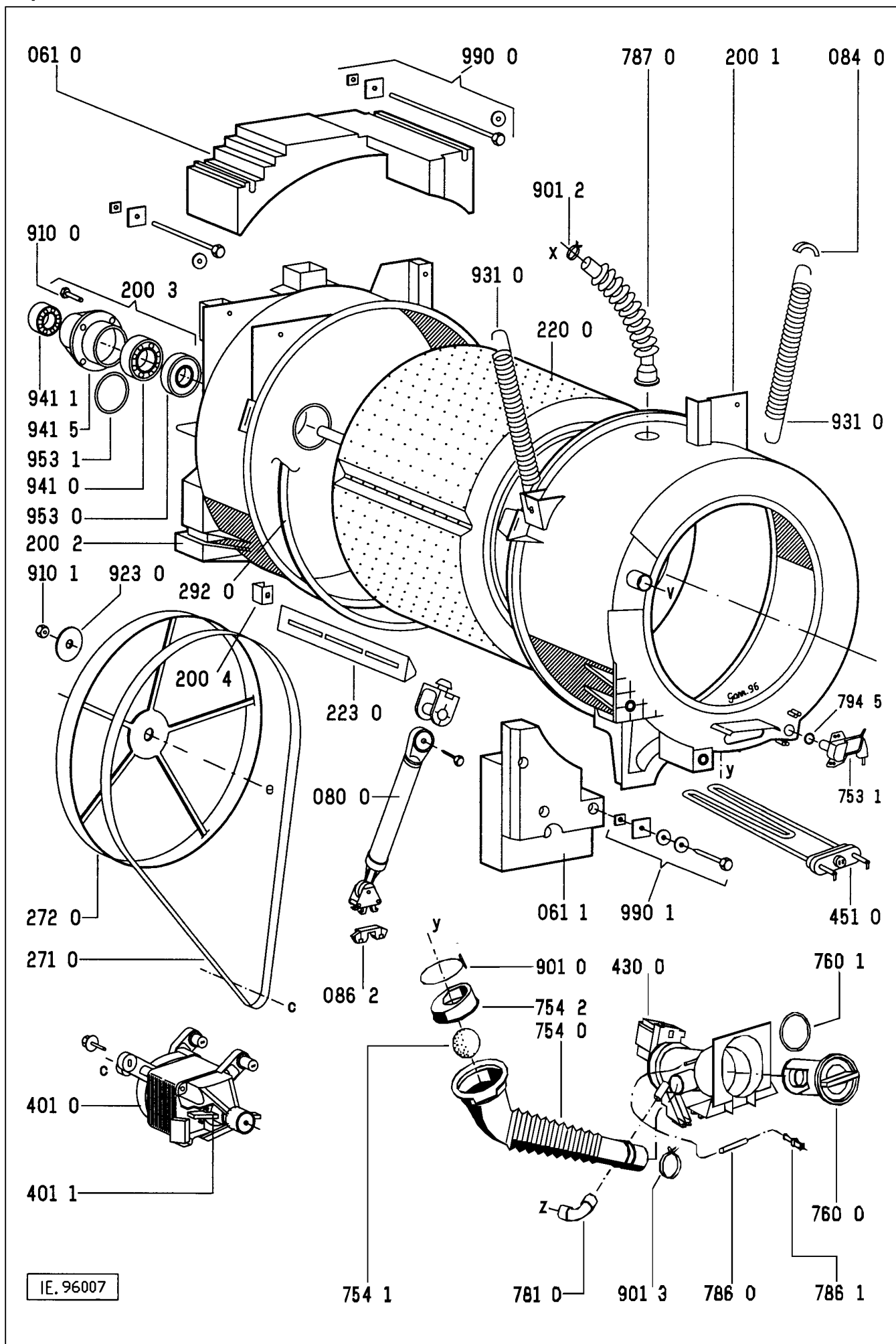
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Pos. No.	12NC Code	Description
931 0	<b>4819 492 38139</b>	Spring Suspension
932 3	<b>4812 492 58022</b>	Spring Door Lock
932 5	<b>4812 492 38359</b>	Spring , Nozzle
941 0	<b>4812 520 28004</b>	Bearing,ball 6206
941 1	<b>4812 520 28066</b>	Bearing,ball 6204
941 5	<b>4812 520 18067</b>	Hub Bearing
953 0	<b>4812 530 58099</b>	Shaft sealing 1200
953 1	<b>4812 530 58096</b>	O-Ring Bearing
961 0	<b>4812 321 48004</b>	Cover
990 0	<b>4819 310 39227</b>	Mounting kit Weight top
990 1	<b>4819 310 39228</b>	Mounting kit Weight bottom
993 0	<b>4812 530 48017</b>	Bow
993 2	<b>4812 268 18015</b>	Lever,security
993 3	<b>4812 395 58004</b>	Tool

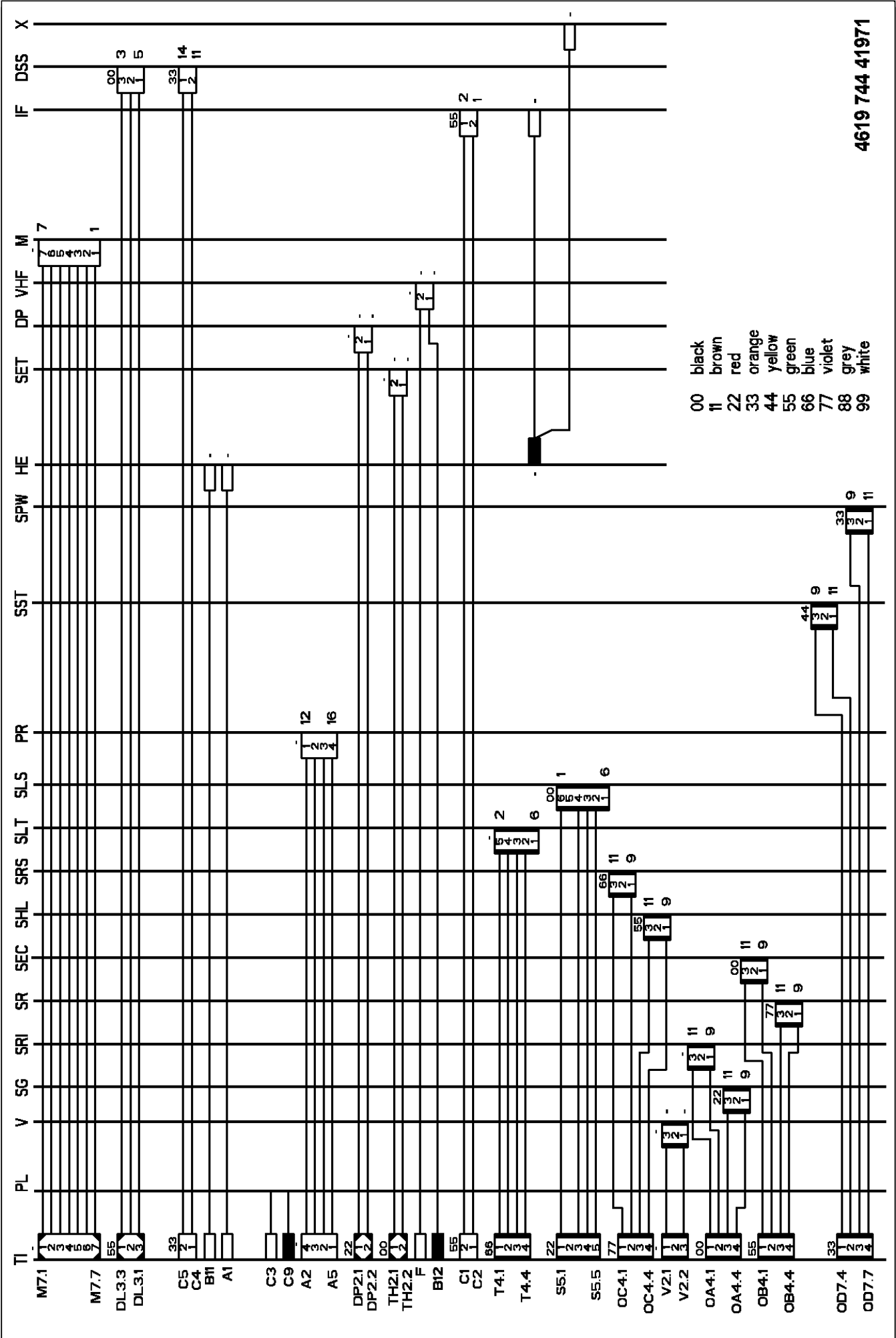
## Exploded view



## Exploded view

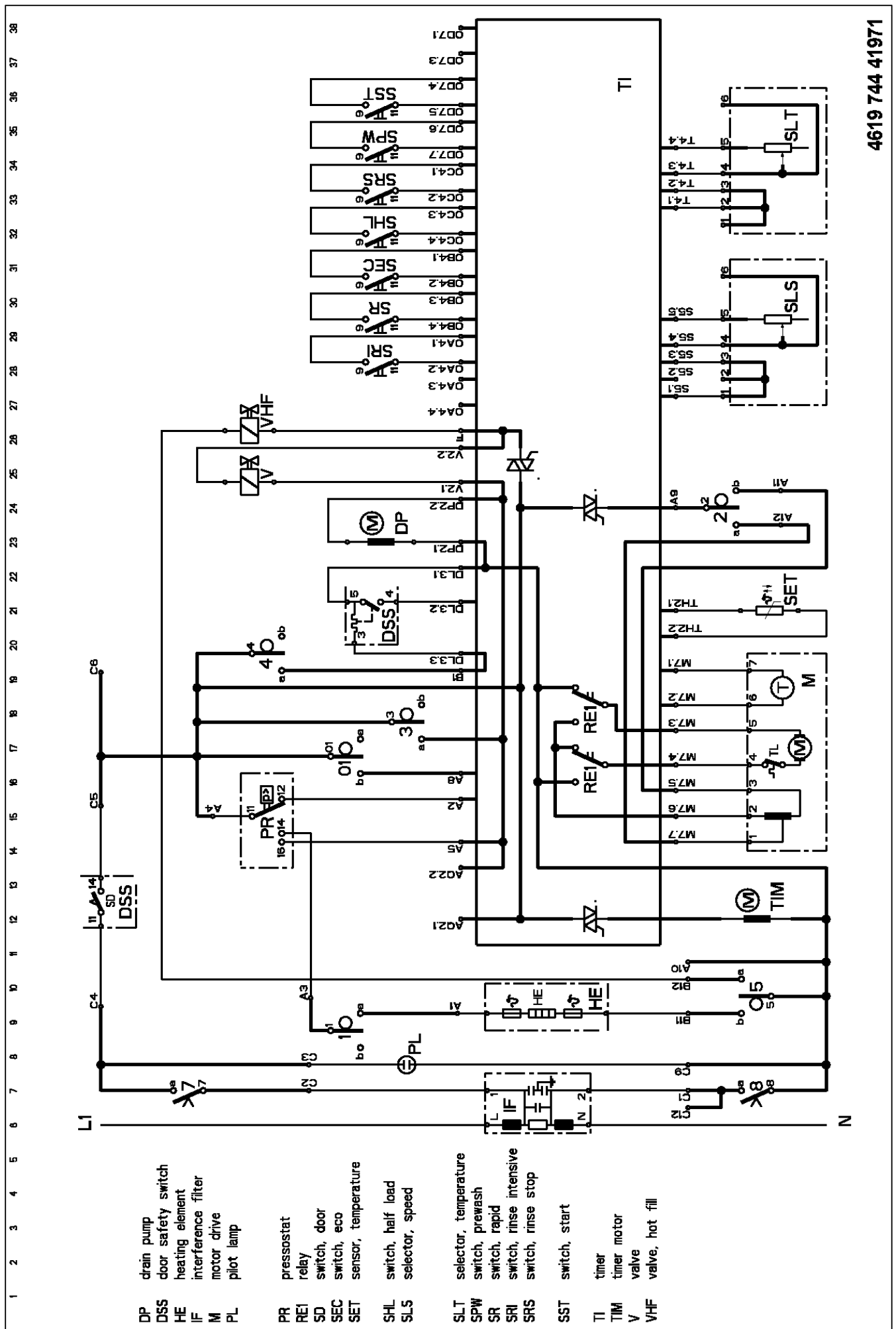


Wiring diagram





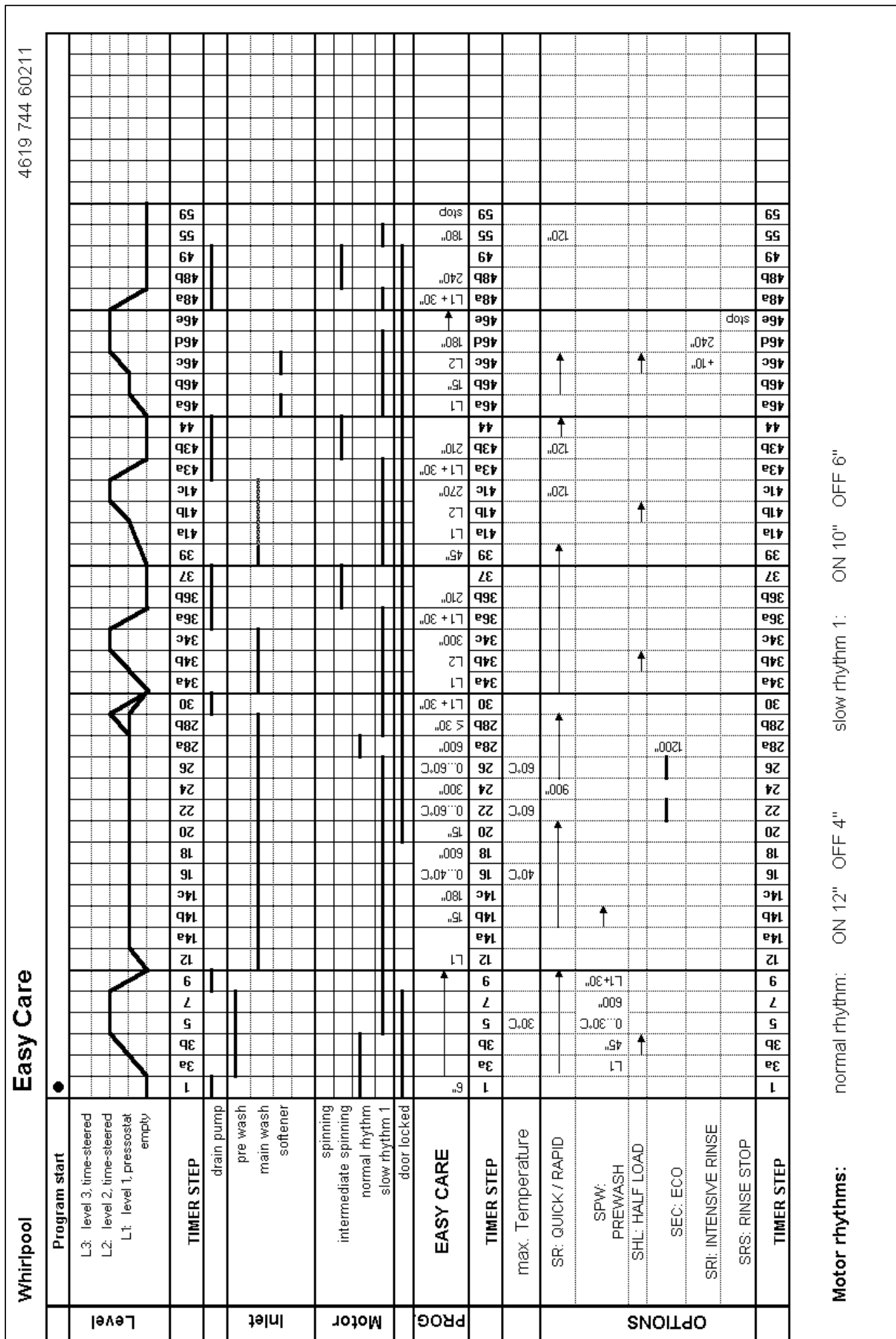
## Circuit diagram



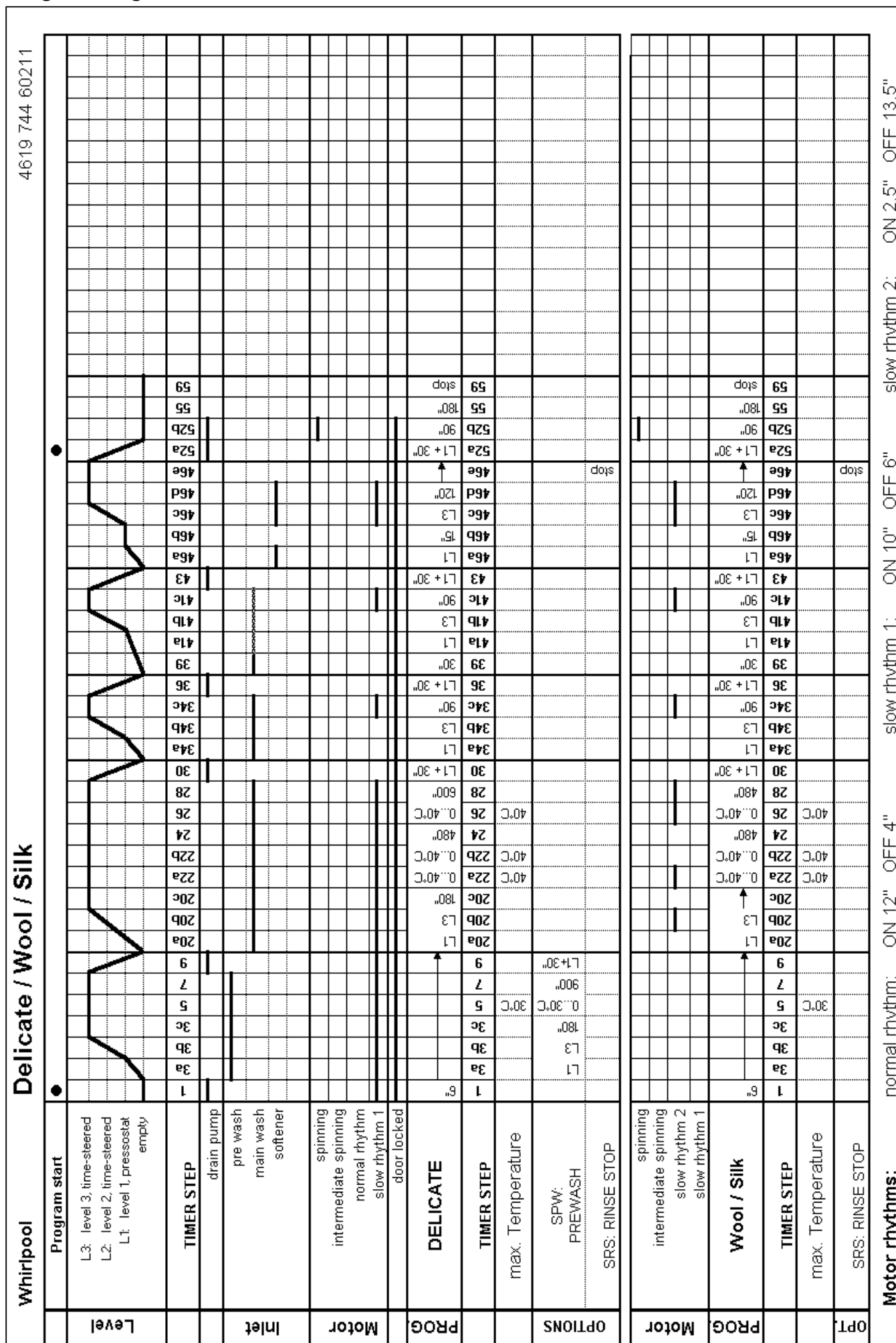
## Program diagram

The diagram illustrates the timing sequence for Program flow Timer 2b, divided into Whirlpool and Cotton cycles. The vertical axis represents time in minutes, with markers at 1, 5, 7, 9, 12, 14a, 14b, 14c, 16, 18, 20, 22, 24a, 24b, 26, 28a, 28b, 28c, 30a, 30b, 31, 34a, 34b, 34c, 36a, 36b, 37, 39, 41a, 41b, 41c, 43a, 43b, 44, 46a, 46b, 46c, 46d, 46e, 48a, 48b, 49, 52a, 52b, 53, 55, and 59. The horizontal axis represents the program flow, with steps including L3, L2, L1, pre wash, main wash, softener, spinning, intermediate spinning, normal rhythm, slow rhythm 1, door locked, COTTON, and various timer steps (3a, 3b, 5, 7, 9, 12, 14a, 14b, 14c, 16, 18, 20, 22, 24a, 24b, 26, 28a, 28b, 28c, 30a, 30b, 31, 34a, 34b, 34c, 36a, 36b, 37, 39, 41a, 41b, 41c, 43a, 43b, 44, 46a, 46b, 46c, 46d, 46e, 48a, 48b, 49, 52a, 52b, 53, 55, 59). The diagram shows the sequence of events for each cycle, including the duration of each step and the timing of motor rhythms (slow, normal, and fast) and program steps (L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, L17, L18, L19, L20, L21, L22, L23, L24, L25, L26, L27, L28, L29, L30, L31, L32, L33, L34, L35, L36, L37, L38, L39, L40, L41, L42, L43, L44, L45, L46, L47, L48, L49, L50, L51, L52, L53, L54, L55, L56, L57, L58, L59, L60, L61, L62, L63, L64, L65, L66, L67, L68, L69, L70, L71, L72, L73, L74, L75, L76, L77, L78, L79, L80, L81, L82, L83, L84, L85, L86, L87, L88, L89, L90, L91, L92, L93, L94, L95, L96, L97, L98, L99, L100).

## Program diagram



# Program diagram



## Text/Legend

**Test flow Whirlpool timer 2b 4619 712 15141**

1. Select program  
Clean the timer  
B (spin)  
push start button > 5sec  
select off
  2. Select program  
B (spin)  
temperature max.  
spin speed max.
  3. Start test program  
push pre wash button max 5 sec  
pull pre wash button max 5 sec  
push pre wash button max 5 sec  
pull pre wash button  
timer goes to step 1
  4. Go to the next step  
push pre wash button  
pull pre wash button  
or push and pull a other option button related  
to the test step, see test flow
- If failure occurs in each step  
valve off; pump off; for 30' motor left 3"  
break 4" right 3"; motor off  
timer goes to failure step 13

**Attention: Use the test program only without laundry!**

step	function	duration	checked	next step with button
1. step	pump	6 sec		pre wash
2. step	fill,pre wash heat up	level 1 30° /55'	NTC	pre wash/rinse hold pre wash/temp. sel.
3. step	pump	level1+30"		pre wash/intensive rinse
4. step	fill,main wash heat up	level1 90° /55'	NTC	pre wash/short pre wash/temp. sel.
5. step	drum rev.left	300 sec	motor	pre wash/short
6. step	drum rev.right	level1+30"	motor	prewash/half load
7. step	fill	level1+30"	motor	pre wash/eco
8. step	fill,softening	level1+30"		pre wash
9. step	pump	level1+30"		pre wash
10. step	pump/spin	90 sec	door lock	pre wash
11. step	tapped field	210 sec	motor	pre wash/speed sel.
12. step	normal rhytm	120 sec	motor	pre wash
13. step	failure step	endless if failure occurs !		
14. step	stop	endless if all fuctions OK !		

Text/Legend

